

# Distinctive Characteristics

Double flatted bushing prevents rotation in panel and increases stability.

Totally sealed construction, achieved with combination of an interior o-ring, a seal between the frame and base, plus insert molded terminals, prevents contact contamination and allows automated soldering and cleaning.

Positive detent mechanism for distinct feel and audible feedback.

Break-before-make contact timing with sliding contact mechanism.

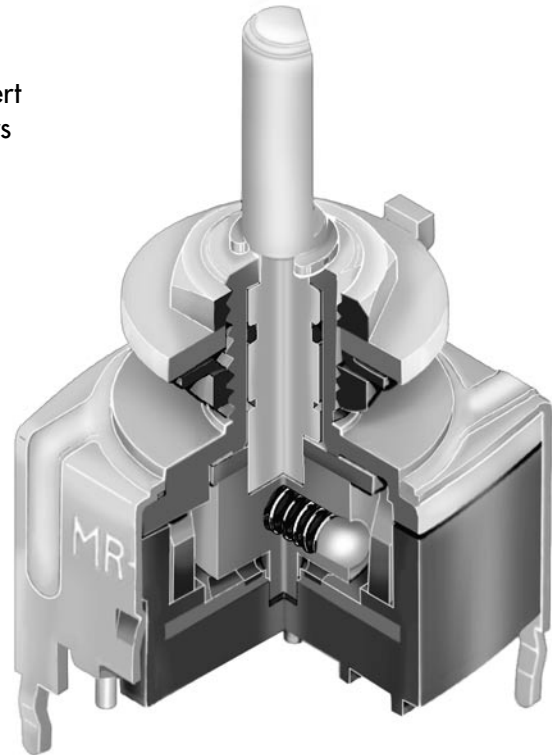
Metal bushing and frame/bracket provide durability.

Panel seal, achieved with use of optional exterior o-ring, conforms to IP67 of IEC60529 Standards.

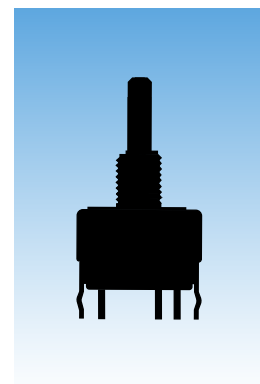
High contact reliability achieved by the self-cleaning contact mechanism.

.100" x .100" (2.54mm x 2.54mm) terminal spacing conforms to standard PC board grid spacing for straight and right angle mounting.

Insert molded terminals lock out flux and other contaminants.



Actual Size



# General Specifications

### Electrical Capacity (Resistive Load)

**Logic Level:** 0.4VA maximum @ 28V AC/DC maximum  
(Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)  
Note: See Supplement Index to find explanation of operating range.

### Other Ratings

**Contact Resistance:** 80 milliohms maximum  
**Insulation Resistance:** 100 megohms minimum @ 500V DC  
**Dielectric Strength:** 500V AC minimum for 1 minute minimum  
**Mechanical Life:** 30,000 operations minimum  
**Electrical Life:** 10,000 operations minimum  
**Operating Torque:** 0.04Nm average  
**Contact Timing:** Nonshorting (break-before-make)  
**Indexing:** 45° for On-On-On & 90° for On-None-On

### Materials & Finishes

**Shaft:** Brass with nickel plating  
**Bushing:** Zinc alloy with nickel plating  
**Frame/Bracket:** Steel with tin plating  
**Movable Contacts:** Beryllium copper spring with gold plating  
**Stationary Contacts:** Copper with gold plating  
**Terminals:** Brass with tin plating  
**Base:** Polyamide

### Environmental Data

**Operating Temperature Range:** -10°C through +70°C (+14°F through +158°F)  
**Humidity:** 90 ~ 95% humidity for 96 hours @ 40°C (104°F)  
**Vibration:** 10 ~ 55Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range & returning in 1 minute; 3 right angled directions for 2 hours  
**Shock:** 50G (490m/s<sup>2</sup>) acceleration (tested in 3 right angled directions, with 5 shocks in each direction)

### Installation

**Mounting Torque:** .686Nm (6.08 lb•in)  
**Cap Installation Force:** 19.6 ~ 29.4N (4.41 ~ 6.61 lbf)

### PCB Processing

**Soldering:** Wave Soldering Recommended: See Profile B in Supplement section  
Manual Soldering: See Profile B in Supplement section  
**Cleaning:** Automated cleaning. See Cleaning specifications in Supplement section.

### Standards & Certifications

**UL Recognition or CSA Certification:** The MRB Series rotaries have not been tested for UL recognition or CSA certification. These switches are designed for use in a low-voltage, low-current, logic-level circuit. When used as intended in a logic-level circuit, the results do not produce hazardous energy.

### TYPICAL SWITCH ORDERING EXAMPLE

MRB

1

2

B

—

A

12B-A

**POLES**

|   |              |
|---|--------------|
| 1 | SPDT<br>SP3T |
| 2 | DPDT<br>DP3T |

**TERMINALS**

|   |                          |
|---|--------------------------|
| B | Straight with Bracket    |
| H | Right Angle with Bracket |

**KNOBS**

|   |                    |
|---|--------------------|
| A | Plain Black        |
| B | Small Color Tipped |
| C | Large Color Tipped |

**COLORS**

**For Plain Knob**

|         |       |
|---------|-------|
| No Code | Black |
|---------|-------|

**For Color Tipped**

|   |        |
|---|--------|
| A | Black  |
| B | White  |
| C | Red    |
| E | Yellow |
| F | Green  |
| G | Blue   |
| H | Gray   |

**CIRCUITS & INDEXING**

|   |    |      |    |     |
|---|----|------|----|-----|
| 2 | ON | NONE | ON | 90° |
| 4 | ON | ON   | ON | 45° |

**DESCRIPTION FOR TYPICAL ORDERING EXAMPLE**

MRB12B-A

### POLES & CIRCUITS

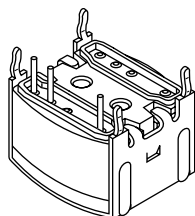
| Pole | Model | Actuator Positions |            |            | Connected Terminals |            |            | Throw & Schematics |
|------|-------|--------------------|------------|------------|---------------------|------------|------------|--------------------|
|      |       | Position 1         | Position 2 | Position 3 | Position 1          | Position 2 | Position 3 |                    |
| SP   | MRB12 | ON                 | NONE       | ON         | C1-1                | OPEN       | C1-2       | SPDT<br>           |
|      | MRB14 | ON                 | ON         | ON         | C1-1                | C1-2       | C1-3       | SP3T<br>           |
| DP   | MRB22 | ON                 | NONE       | ON         | C1-1 C2-4           | OPEN       | C1-2 C2-5  | DPDT<br>           |
|      | MRB24 | ON                 | ON         | ON         | C1-1 C2-4           | C1-2 C2-5  | C1-3 C2-6  | DP3T<br>           |

### TERMINALS



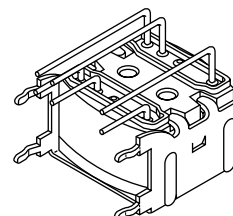
**Straight PC Terminals with Bracket**

SPDT



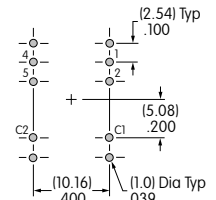
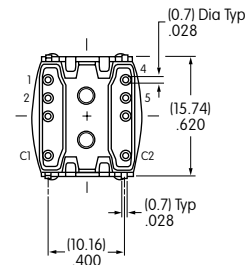
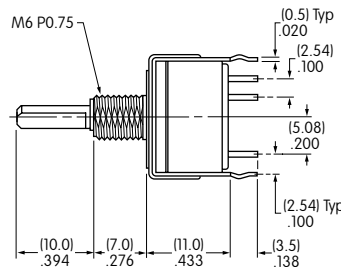
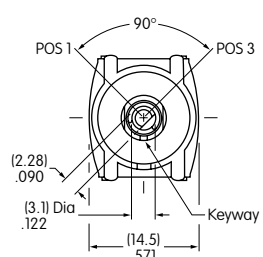
**Right Angle PC Terminals with Bracket**

DPDT



### TYPICAL SWITCH DIMENSIONS

#### 90° Indexing • SPDT & DPDT • Straight PC

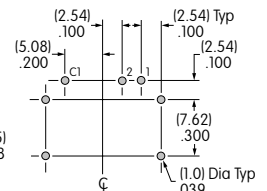
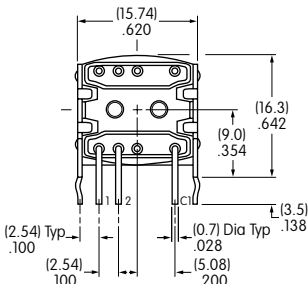
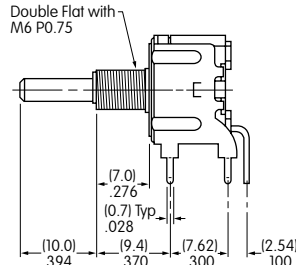
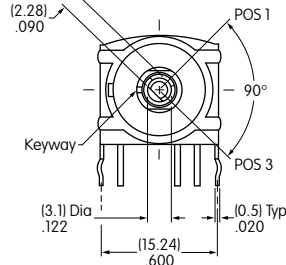


MRB12B

Actuator shown in Position 1

Single pole model does not have terminals 4, 5 & C2

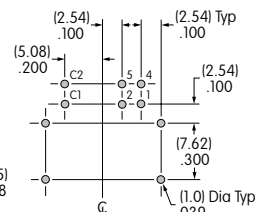
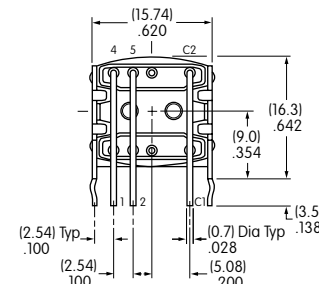
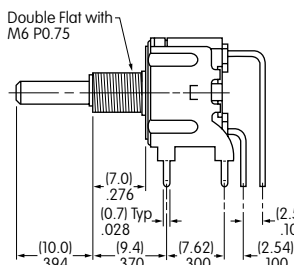
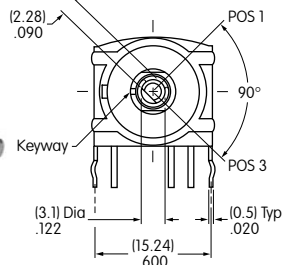
#### 90° Indexing • SPDT • Right Angle PC



MRB12H

Actuator shown in Position 1

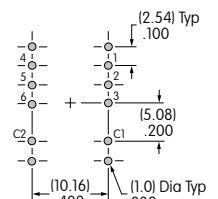
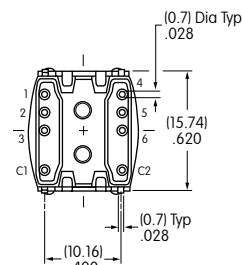
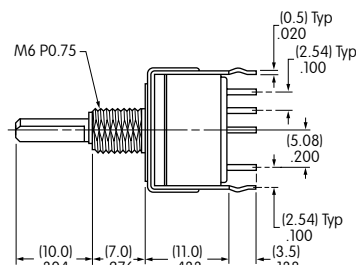
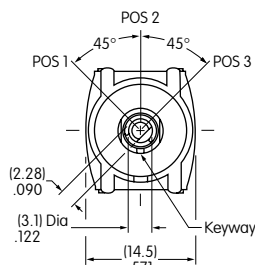
#### 90° Indexing • DPDT • Right Angle PC



MRB22H

Actuator shown in Position 1

#### 45° Indexing • SP3T & DP3T • Straight PC



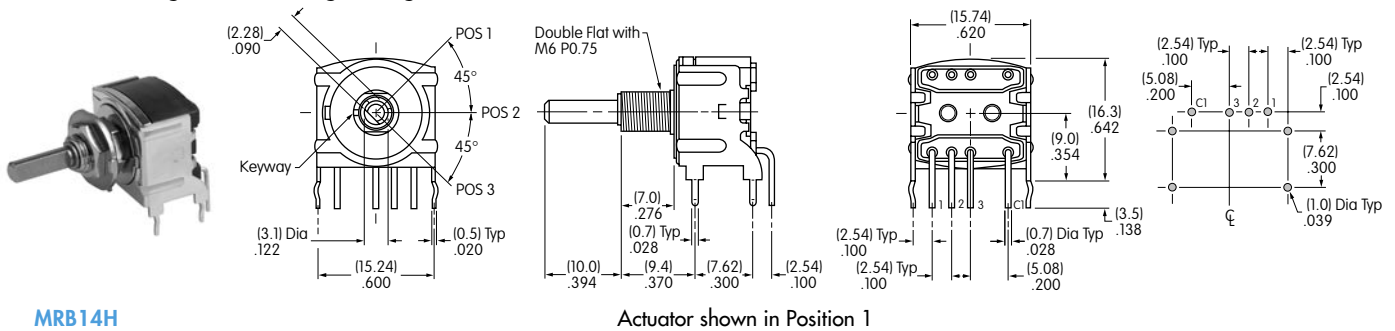
MRB14B

Actuator shown in Position 1

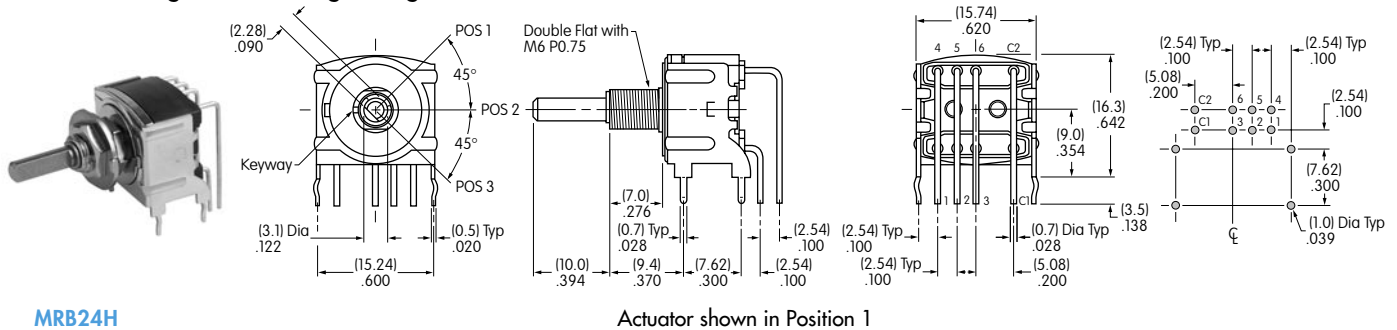
Single pole model does not have terminals 4, 5, 6 & C2

### TYPICAL SWITCH DIMENSIONS

#### 45° Indexing • SP3T • Right Angle PC



#### 45° Indexing • DP3T • Right Angle PC

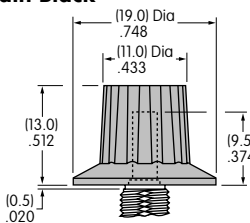


### KNOBS

#### A AT433 Plain Black

Material:  
Polyacetal

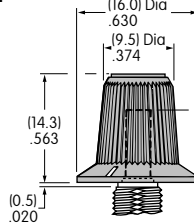
Color:  
Black



#### B AT4103 Small Color Tipped

Polyester Base:  
Black

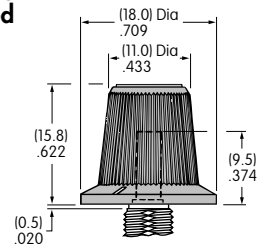
Polyamide Tip  
Colors:  
A, B, C, E, F, G, H



#### C AT4104 Large Color Tipped

Polyester Base:  
Black

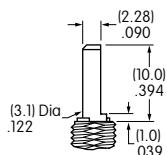
Polyamide Tip  
Colors:  
A, B, C, E, F, G, H



Color Codes:

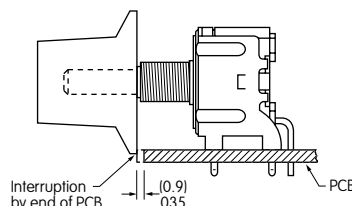
**A** Black **B** White **C** Red **E** Yellow **F** Green **G** Blue **H** Gray

#### Shaft Detail



#### Mounting Precaution for Cap Clearance on Right Angle Models

When mounting a right angle switch, a cap clearance of .035" (0.9mm) is recommended.



#### Standard Hardware Supplied

AT513M Hex Nut  
AT507M Locking Ring  
AT509 Lockwasher

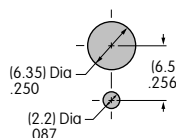
#### Optional Hardware

AT535 O-ring for Panel Seal

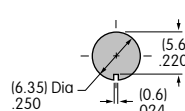
See Supplement for details

### PANEL CUTOUTS & MAXIMUM EFFECTIVE PANEL THICKNESS

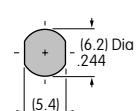
With Standard Hardware  
.087" (2.2mm)



Without Locking Ring  
.118" (3.0mm)



Sealed Panel with 2 Hex Nuts & 1 Rubber O-ring  
.165" (4.2mm)



Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)

[www.lifeelectronics.ru](http://www.lifeelectronics.ru)